OKLAHOMA
AGRICULTURAL EXPERIMENT
STATION

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EXPERIMENT STATION WORK, 1911

LINES OF INVESTIGATION AND RESEARCH

BULLETINS FREE---SEND FOR THEM

STILLWATER, OKLAHOMA

EXPERIMENT STATION WORK-1911

LINES OF INVESTIGATION AND RESEARCH

The following lines of work are now being pursued by the different departments of the Experiment Station.

ADAMS FUND WORK

DEPARTMENT OF VETERINARY SCIENCE

Animal Breeding Experiments

Project No. 1.

Effect of cotton seed meal and other nitrogenous feeds on the breeding qualities of animals.

Project No. 2.

Artificial Insemination—A study of the reproductive cells to investigate the possibility of prolonging their vitality.

DEPARTMENT OF HORTICULTURE

Project No. 3.

Blossoming and Setting Fruit of the Tomato—A study into the causes of failure in the tomato plant to set fruit.

Project No. 8.

Research Work in the Development of Peach Buds—A study of the fertility and cultivation of the soil and climatic conditions which affect their development.

Project No. 11.

Investigation to Determine Limits of Budding and Grafting and the Factors which Control These Limits: Whether it be botanical relationship or physical texture of plant tissue, or something else not yet known.

AGRONOMY DEPARTMENT

Project No. 4.

Breeding Corn—With special reference to the quality of drouth resistance.

oject No. 5.

Breeding Sorghums—Especially Kafir, Milo Maize and Broom-rn—With special reference to these characteristics of the plants nich constitute drouth resistance.

DEPARTMENT OF ENTOMOLOGY

roject No. 6.

Corn Plant Louse—A study of the habits of life of this pest in der to ascertain the kinds of plants, in addition to corn, Kafir corn, d sorghums which it attacks. Experiments in its various stages of velopment for its control.

roject No. 9.

Investigation of Cowpea Louse—A study of the identity of this est, its life history, food plants, and the best methods to employ in lation to its control.

roject No. 10.

The White Ant—A study of the development of this pest. Ex-eriments are being conducted with the idea of obtaining an efficient ethod of control. Being subterranean in habit and strange breeding abit, investigations are being made in order to reveal the real method f reproduction so as to attack the pest at the proper time with the roper kind of insecticide or other means of destruction.

ANIMAL HUSBANDRY DEPARTMENT

Project No. 7.

Sheep Breeding Experiment—A study of the laws and principles nvolved in the establishment of a distinct strain or breed of sheep uitable for the Southwest, with a statistical record thereof, including oth positive and negative results.

CHEMISTRY DEPARTMENT

The Chemistry Department cooperates in the work of Adams Projects 1, 2, 4, 5, and 7.

HATCH FUND WORK

DAIRY DEPARTMENT

Project No. 1.

A study of the farm conditions and other factors which affect the keeping quality of cream. This investigation is along the lines of bacterial content, acidity and flavor.

BACTERIOLOGICAL DEPARTMENT

Project No. 1.

The Department of Bacteriology is also carrying on this work in dairy bacteriology and cooperates with the Dairy Department in the bacterial investigation. The bacterial content of the dairy products likewise that of the surrounding atmosphere in rooms where the products are made or kept is determined.

Project No. 2.

A study of the effect of drugs on hogs in treating the common diseases, with special attention to the application of any drug that will in any way influence the course of hog cholera.

Project No. 3.

The study of animal parasites and remedies that may be used against them.

ANIMAL HUSBANDRY DEPARTMENT

Feeding Experiments

Project No. 1.

Forage experiment comparing winter barley and sorghum with a half ration of corn chop and a full ration of corn chop, hogs confined. Gains are in proportion to amount of grain fed.

Project No. 2.

Green feed with varying rations of corn chops, hogs confined. Alfalfa and rape were the green feeds used; alfalfa so far proving a more satisfactory supplementary green feed than rape.

Project No. 3.

Comparison of supplementary feeds with ear corn, using alfalfa meal, tankage, and alfalfa hay. Unsatisfactory to feed supplementary feeds with ear corn.

Project No. 4.

Hogging Off Corn—At rate of ten hogs per acre, corn was completely harvested in thirty days, returning 67½ cents per bushel for corn when hogs were worth $7.00 per cwt.

Project No. 5.

Cotton seed meal as a supplementary feed for hogs, using varying amounts of corn chops. Experience seems to indicate that there is some danger in feeding more than a limited portion of cotton seed meal to hogs, and if a heavy proportion of cotton seed meal is fed it should be given intermittently.

Project No. 6.

Forage Experiment With Alfalfa—Ten hogs per acre were used.

Lot 1 received alfalfa forage alone. Lot 2 received a half ration of corn chop in addition, and Lot 3 received a full ration of corn chop in addition. Results in this experiment show that gain was largely in proportion to amount of grain fed.

Project No. 7.

Dairy Feeding Experiment Using Cotton Seed Meal and Silage—Twelve dairy cows of about equal dairy capacity were divided into four lots of three each. Two lots were used with cotton seed meal and two with silage. Results show that from the standpoint of economical production it pays to use cotton seed meal as a concentrate and that with silage in the roughage milk can be produced much more economically.

IN PROSPECT

Project No. 8.

Experiments in feeding of work mules to compare the efficiency and economy of different rations will be commenced this fall.

Project No. 9.

Experiments with poultry to improve the laying strains through use of trap nests and improved methods of feeding, care and selection.

Project No. 10.

Fattening Lambs—A comparison of the fattening qualities of different breeds of lambs and the efficiency of different rations.

Project No. 11.

Fattening Steers—A comparison of different kinds of roughage and cotton seed meal in feeding steers.

AGRONOMY DEPARTMENT

Project No. 1.

Continuous Culture Experiments—The object of this experiment is to determine the results of the continuous growth of the staple crops without any kind of fertilizer, compared with the results secured by the continuous culture of staple crops which have received liberal applications of barnyard manure.

Project No. 2.

Variety Tests—Staple Crops—To determine the varieties of staple crops best suited for this section of Oklahoma.

Project No. 3.

Crop Rotation—The object of this experiment is to determine what rotations are best suited for Oklahoma.

Project No. 4.

Corn Breeding—To produce a higher yielding strain of corn.

Project No. 5.

Cotton Breeding—To produce higher yielding strains of cotton.

Project No. 6.

Winter Oats—To test the advisability of growing winter oats in this section of Oklahoma.

Project No. 7.

Alfalfa Fertility—To determine yield per acre and the chemical content of the plants on plats which have received applications of nitrogen, phosphorus, potassium, lime, and barnyard manure in various combinations. Fertilizer analyses.

Project No. 8.

Fertility Experiment—The object of this experiment is to determine the effect on crop production of different fertilizers applied separately and in various combinations to the soil.

Project No. 9.

Depth of Plowing—To determine the effect of different depths of plowing on the yield of corn, oats, and cotton.

Project No. 10.

Triangular Experiment—Experiments in connection with the U. S. Department of Agriculture—Experiments with Kafir corn, and milo maize under division of Grain Investigations to determine the effect of a change of climate and soil conditions upon the chemical composition and yielding capicity.

Project No. 11.

Plant Food Requirements of Staple Oklahoma Crops—To determine the relative plant food requirements of the staple crops grown in different sections throughout the State of Oklahoma.

ENTOMOLOGY DEPARTMENT

Project No. 1.

The Alfalfa Web Worm—To ascertain the number of broods per year, relative damage of each, and natural and artificial methods of control.

Project No. 2.

False Chinch Bug—To ascertain the life cycle, number of broods, time of hibernation and emergence, and control.

Project No. 3.

Shot Hole Borer—To ascertain the number of broods and the time of issuance in Oklahoma, and methods of control.

Project No. 4.

Continued Investigation of the Melon Louse—To ascertain its

complete life history, with a view of learning better methods for its control.

Project No. 5.

Apiculture—(a) Initial Object: To develop an Experiment Station Apiary, and to ascertain the connection there with the best local honey plants in relation to the different strains of bees. (b) To ascertain the best strains of bees adapted to the State in general; also to ascertain the value of bees in the fertilization of alfalfa, in relation to seed yield.

Project No. 6.

Locust Borer—To ascertain the life cycle and food plants other than the locust tree in this state, and test the best methods of control.

Project No. 7.

The Howard Scale—To ascertain the life history in this State, the economical importance, and probable methods of control.

Project No. 8.

Lace Winged Bugs(Tingitids, shade tree pests)—The prevalent injurious species to be identified, and their life history ascertained for the purpose of control.

CHEMISTRY DEPARTMENT

Project No. 1.

Alfalfa Fertility—To determine the yield per acre and the chemical constituents of plats which have received applications of nitrogen, phosphorous, potassium, lime, and barnyard manure in various combinations. Analyses are made of the fertilizers added to each plat.

Project No. 2.

Fertility Experiment—To determine the effect on crop production of different fertilizers applied separately and in combination.

Project No. 3.

Depth of Plowing—To determine the effect of different depths of plowing on the chemical composition of the soil and yield of corn, oats, and cotton. The analyses of the soil at different depths are to be made to obtain data on plant foods made available, cooperating with Agronomy Department.

Project No. 4.

The Study of Plant Food Removed From the Soil By Some Important Oklahoma Crops—To determine the relative amounts of plant food requirements of the staple crops grown in different sections and under different conditions in the State of Oklahoma.

HORTICULTURAL DEPARTMENT

Project No. 1.

Investigation of fruit conditions and variety tests throughout the state, revealing the general orchard practices over the state. Result to date is classified list of 1,200 growers with a tabulated statement of their success and experience. Same will be published as circular soon.

Project No. 2.

Investigation on growing pecans in Oklahoma. This will indicate results of experience from people over the state as well as our own plantings, including young trees set out, and budding ten 12-year-old trees growing naturally on the creek. Latter part of work is in co-operation with U. S. Department of Agriculture.

Project No. 3.

Experiments in blasting of subsoil where hardpan and rocky ledges occur beneath the soil. This work has been started beneath some of our new orchard plantings and promises good results in certain sections of the State.

Project No. 4.

Variety test orchard has been started—14 acres,—part of which is on the land underlaid by hardpan referred to in Project No. 3.

Project No. 5.

Forestry planting work started some years ago is still in progress. The past three years have been very dry and results in this experiment are becoming quite apparent. The last two years have been particularly good, giving a drastic test of the ability of the various species of trees to withstand drouth.

Project No. 6.

A comparison of the relationship between seeds and the resultant plants. This experiment is intended to demonstrate the advisability of using our commonly manufactured seed graders for the selection of seeds for farm planting.